

IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

- 1 1. (Currently amended) A method for managing access to a resource, the method
2 comprising the computer-implemented steps of:
3 sending, from a requestor to a master of the resource, a lock mode request for a
4 lock mode on the resource;
5 receiving the resource at the requestor from a holder of the resource; and
6 accessing the resource as if the requestor had been granted the lock mode request
7 without waiting to receive an express lock mode grant from the master.
- 1 2. (Currently amended) The method of Claim 1, further comprising the computer-
2 implemented steps of:
3 detecting [[whether]] that the step of receiving the resource at the requestor [[will
4 occur]] has occurred; and
5 ~~if the requestor does receive the resource~~ sending a lock assume message, from
6 the requestor to the master, to inform the master that the requestor has
7 assumed the lock mode relative to the resource.
- 1 3. (Currently amended) A method for managing access to a resource, the method
2 comprising the computer-implemented steps of:
3 receiving, at a holder, an inform lock holder message that a requestor needs the
4 resource, where the holder currently holds the resource and a first lock
5 mode on the resource;
6 transferring the resource to the requestor in response to receiving the inform lock
7 holder message without sending a status message to a master of the
8 resource wherein the status message is a down-convert message or a
9 release lock message; and

10 updating a lock mode record, maintained by the holder, to indicate that the holder
11 has down-converted from the first lock mode to a second lock mode for
12 the resource.

1 4. (Currently amended) The method of [[for]] Claim 3, further comprising the
2 computer-implemented [[steps]] step of:
3 sending an update lock message to the master, wherein the update lock message
4 indicates the second lock mode for the resource.

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1 5. (Currently amended) The method of [[for]] Claim 3, further comprising the
2 computer-implemented steps of:
3 receiving, at the holder, a message from a sender_{[[;]]}, wherein the message
4 includes a third lock mode on the resource;
5 detecting that the first lock mode and the third lock mode do not match; and
6 sending a lock status message to the sender_{[[;]]}, wherein the lock status message
7 includes the first lock mode.

1 6. (Currently amended) The method of [[for]] Claim 3, further comprising the
2 computer-implemented steps of:
3 receiving, at the holder, a single batched inform lock holder message that contains
4 all information necessary to transfer the resource to a plurality of
5 requestors; and
6 transferring the resource to the plurality of requestors.

1 7. (Currently amended) The method of [[for]] Claim 3, further comprising the
2 computer-implemented [[steps]] step of:
3 sending a lock access message from the holder to a master.

1 8. (Currently amended) A method for managing access to a resource, the method
2 comprising the computer-implemented steps of:
3 receiving, at a master, a request message which indicates that a requestor needs a

4 particular resource of a plurality of resources, where the master maintains
5 a plurality of lock mode records corresponding to the plurality of
6 resources;
7 sending, from the master to a holder, an inform lock holder message to indicate to
8 the holder that the requestor needs the particular resource;
9 receiving a lock access message from the requestor where the lock access message
10 indicates that the requestor has assumed a lock mode relative to the
11 particular resource; and
12 performing an update to a particular lock mode record of the plurality of lock
13 mode records in response to receiving the lock access message[[:]],
14 wherein the update indicates that the requestor has assumed the lock mode
15 on the particular resource.

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1 9. (Currently amended) [[A]] The method of [[for]] Claim 8, wherein the computer-
2 implemented step of performing an update to a particular lock mode record of the
3 plurality of lock mode records in response to receiving the plurality of lock mode
4 records in response to receiving the lock access message[[:]] is performed prior to
5 receiving any status message from the holder relating to the particular
6 resource[[:]], and wherein the status message is a down-convert message or a
7 release lock message.

1 10. (Currently amended) The [[A]] method of [[for]] Claim 8, wherein the computer-
2 implemented step of performing an update to a particular lock mode record of the
3 plurality of lock mode records in response to receiving the plurality of lock mode
4 records in response to receiving the lock access message[[:]] is performed without
5 receiving the status message from the holder relating to the particular
6 resource[[:]], and wherein the status message is a down-convert message or a
7 release lock message.

1 11. (Currently amended) The method [[for]] of Claim 8, further comprising the
2 computer-implemented [[step]] steps of:

3 receiving₁ at the master₁ a plurality of request messages which indicate that a
4 plurality of requestors need the particular resource; and
5 sending from the master to the holder the inform lock holder message₁ wherein the
6 inform lock holder message contains all information from the plurality of
7 request messages that is necessary for the holder to transfer the particular
8 resource to the plurality of requestors.

1 12. (Currently amended) The method [[for]] of Claim 8₁ further comprising the
2 computer-implemented [[step]] steps of:
3 receiving₁ at the master₁ a message from a sender_{[[;]]}₁ wherein the message
4 includes a second lock mode on the particular resource;
5 detecting that the lock mode and the second lock mode do not match; and
6 sending a lock status message to the sender_{[[;]]}₁ wherein the lock status message
7 includes the lock mode.

1 13. (Currently amended) The method [[for]] of Claim 8₁ further comprising the
2 computer-implemented [[step]] steps of:
3 receiving₁ at the master₁ a second request message_{[[;]]}₁ wherein the request
4 message and the second request message both contain requests for the
5 resource in exclusive lock mode; and
6 [[queueing]] queuing the second request message until the master receives the
7 lock access message from the requestor.

1 14. (Currently amended) A method for managing access to a resource, the method
2 comprising the computer-implemented steps of:
3 receiving₁ at a master₁ a request message which indicates that a requestor needs a
4 particular resource of a plurality of resources, where the master maintains
5 a plurality of lock mode records corresponding to the plurality of
6 resources;
7 designating one holder out of a plurality of holders wherein the plurality of
8 holders all have respective lock modes for the particular resource;

9 sending a plurality of broadcast inform lock holder messages to the plurality of
10 holders except for the one holder indicating that the requestor needs the
11 particular resource;
12 receiving a plurality of update lock messages from the plurality of holders except
13 for the one holder[[:]], wherein the a plurality of update lock messages
14 indicates the respective lock modes of the plurality of holders;
15 sending, from the master to the one holder, an inform lock holder message to
16 indicate to the one holder that the requestor needs the particular resource;
17 receiving a lock access message from the requestor where the lock access message
18 indicates that the requestor has assumed a lock mode relative to the
19 particular resource; and
20 performing an update to a particular lock mode record of the plurality of lock
21 mode records in response to receiving the lock access message without
22 receiving a status message[[:]], wherein the status message is a down-
23 convert message or a release lock message[[:]], and wherein the update
24 indicates that the requestor has assumed the lock mode on the particular
25 resource.

1 15. (Currently amended) A computer system, comprising:
2 a processor;
3 a [[memory]] computer-readable medium storing having stored instructions of the
4 computer system [[causing]] which, when executed by the processor, cause the
5 processor to perform the computer-implemented steps of:
6 sending, from a requestor to a master of a resource, a lock mode request for the
7 lock mode on the resource;
8 receiving the resource at the requestor from a holder of the resource; and
9 accessing the resource as if the requestor had been granted the lock mode request
10 without waiting to receive an express lock mode grant from the master.

1 16. (Currently amended) The computer system of Claim 15, wherein ~~the memory~~
2 ~~having stored instructions of the computer system causing the processor to~~

3 ~~perform~~ the computer-implemented steps further ~~comprising~~ comprise the
4 computer-implemented steps ~~step~~ of:
5 detecting ~~[[whether]]~~ that the step of receiving the resource at the requestor ~~[[will~~
6 ~~occur]]~~ has occurred; and
7 ~~if the requestor does receive the resource~~; sending a lock assume message from
8 the requestor to the master to inform the master that the requestor has
9 assumed the lock mode relative to the resource.

- 1 17. (Currently amended) A computer system, comprising:
2 a processor;
3 a ~~[[memory]]~~ computer-readable medium, coupled to the processor, containing:
4 a particular lock mode record of a plurality of lock mode records
5 corresponding to a lock mode of a particular resource of a plurality
6 of resources, where a master maintains the plurality of lock mode
7 records corresponding to the plurality of resources~~[[;]]~~, wherein the
8 computer-readable medium stores ~~[[having stored]]~~ instructions of
9 the computer system which, when executed by the processor, cause
10 ~~[[causing]]~~ the processor to perform the computer-implemented
11 steps of:
12 receiving, at the master, a request message which indicates that a
13 requestor needs the particular resource of the plurality of
14 resources, where the master maintains the plurality of lock
15 mode records corresponding to the plurality of resources;
16 sending, from the master to a holder, an inform lock holder
17 message to indicate to the holder that the requestor needs
18 the particular resource;
19 receiving a lock access message from the requestor where the lock
20 access message indicates that the requestor has assumed the
21 lock mode relative to the particular resource; and
22 performing an update to the particular lock mode record of the
23 plurality of lock mode records in response to receiving the
- claim*

24 lock access message without receiving a status
25 message[[:]],
26 wherein the status message is a down-convert message or a release
27 lock message[[:]], and
28 wherein the update indicates that the requestor has assumed the
29 lock mode on the particular resource.

1 18. (Currently amended) The computer system [[for]] of Claim 17, wherein the
2 computer-implemented step of performing an update to a particular lock mode
3 record of the plurality of lock mode records in response to receiving the lock
4 access message[[:]] is performed prior to receiving any status message from the
5 holder relating to the particular resource, and wherein the status message is a
6 down-convert message or a release lock message.

1 19. (Currently amended) The computer system [[for]] of Claim 17, wherein the
2 computer-implemented step of performing an update to a particular lock mode
3 record of the plurality of lock mode records in response to receiving the plurality
4 of lock mode records in response to receiving the lock access message[[:]] is
5 performed without receiving the status message from the holder relating to the
6 particular resource, and wherein the status message is a down-convert message or
7 a release lock message.

1 20. (Currently amended) The computer system of Claim 17, wherein ~~the memory~~
2 ~~having stored instructions of the computer system causing the processor to~~
3 ~~perform the computer-implemented steps further comprising~~ comprise the
4 computer-implemented [[step]] steps of:
5 receiving, at the master, a plurality of request messages which indicate that a
6 plurality of requestors need the particular resource; and
7 sending, from the master to the holder, the inform lock holder message, wherein
8 the inform lock holder message contains all information from the plurality
9 of request messages that is necessary for the holder to transfer the

10 particular resource to the plurality of requestors.

1 21. (Currently amended) The computer system of Claim 17, wherein ~~the memory~~
2 ~~having stored instructions of the computer system causing the processor to~~
3 ~~perform~~ the computer-implemented steps further ~~comprising~~ comprise the
4 computer-implemented [[step]] steps of:
5 receiving, at the master, a message from a sender~~[[;]]~~, wherein the message
6 includes a second lock mode on the particular resource;
7 detecting that the lock mode and the second lock mode do not match; and
8 sending a lock status message to the sender, wherein the lock status message
9 includes the lock mode.

1 22. (Currently amended) The computer system [[for]] of Claim 17, wherein the
2 computer-implemented steps further ~~comprising~~ comprise the computer-
3 implemented [[step]] steps of:
4 receiving, at the master, a second request message wherein the request message
5 and the second request message both contain requests for the resource in
6 exclusive lock mode; and
7 ~~queueing~~ queuing the second request message until the master receives the lock
8 access message from the requestor.

1 23. (Currently amended) A computer system, comprising:
2 a processor;
3 a [[memory]] computer-readable medium, coupled to the processor, containing:
4 a particular lock mode record of a plurality of lock mode records
5 corresponding to a lock mode of a particular resource of a plurality
6 of resources, where a master maintains the plurality of lock mode
7 records corresponding to the plurality of resources~~[[;]]~~, wherein the
8 computer-readable medium stores ~~having stored~~ instructions of the
9 computer system which, when executed by the processor, cause
10 [[causing]] the processor to perform the computer-implemented

11 steps of:
12 receiving₁ at a master₁ a request message which indicates that a
13 requestor needs the particular resource of the plurality of
14 resources, where the master maintains the plurality of lock
15 mode records corresponding to the plurality of resources;
16 designating one holder out of a plurality of holders wherein the
17 plurality of holders all have respective lock modes for the
18 particular resource;
19 sending a plurality of broadcast inform lock holder messages to the
20 plurality of holders except for the one holder indicating that
21 the requestor needs the particular resource;
22 receiving a plurality of update lock messages from the plurality of
23 holders except for the one holder₁ wherein the plurality of
24 update lock messages indicates the respective lock modes
25 of the plurality of holders;
26 sending₁ from the master to the one holder₁ an inform lock holder
27 message to indicate to the one holder that the requestor
28 needs the particular resource;
29 receiving a lock access message from the requestor where the lock
30 access message indicates that the requestor has assumed the
31 lock mode relative to the particular resource; and
32 performing an update to the particular lock mode record of the
33 plurality of lock mode records in response to receiving the
34 lock access message without receiving a status
35 message[[:]].
36 wherein the status message is a down-convert message or a release
37 lock message[[:]], and
38 wherein the update indicates that the requestor has assumed the
39 lock mode on the particular resource.

1 24. (Currently amended) A computer system₁ comprising:

2 a processor;
3 a [[memory]] computer-readable medium, coupled to the processor, containing:
4 a resource and a first lock mode on the resource; and
5 a lock mode record associated with the resource[[:]], wherein the
6 computer-readable medium stores ~~having stored~~ instructions of the
7 computer system which, when executed by the processor, cause
8 ~~causing~~ the processor to perform the computer-implemented steps
9 of:
10 receiving, at a holder, an inform lock holder message that a
11 requestor needs the resource, [[where]] wherein the holder
12 currently holds the resource and the first lock mode on the
13 resource;
14 transferring the resource to the requestor in response to receiving
15 the inform lock holder message without sending a status
16 message to a master of the resource wherein the status
17 message is a down-convert message or a release lock
18 message; and
19 updating the lock mode record, maintained by the holder, to
20 indicate that the holder has down-converted from the first
21 lock mode to a second lock mode for the resource.

1 25. (Currently amended) The computer system of Claim 24, wherein ~~the memory~~
2 ~~having stored instructions of the computer system causing the processor to~~
3 ~~perform~~ the computer-implemented steps further comprise ~~comprising~~ the
4 computer-implemented step ~~steps~~ of:
5 sending an update lock message to the master, wherein the update lock message
6 indicates the second lock mode for the resource.

1 26. (Currently amended) The computer system of Claim 24, wherein the ~~memory~~
2 ~~having stored instructions of the computer system causing the processor to~~
3 ~~perform~~ the computer-implemented steps further comprise ~~comprising~~ the

4 computer-implemented steps of:
5 receiving₁ at the holder₁ a message from a sender₁[[;]]₁ wherein the message
6 includes a third lock mode on the resource;
7 detecting that the first lock mode and the third lock mode do not match; and
8 sending a lock status message to the sender, wherein the lock status message
9 includes the first lock mode.

1 27. (Currently amended) The computer system of Claim 24 wherein ~~the memory~~
2 ~~having~~
3 ~~stored instructions of the computer system causing the processor to perform the~~
4 computer-implemented steps further comprise ~~comprising~~ the computer-
5 implemented steps of:
6 receiving₁ at the holder₁ a single batched inform lock holder message that contains
7 all information necessary to transfer the resource to a plurality of
8 requestors; and
9 transferring the resource to the plurality of requestors.

1 28. (Currently amended) A computer-readable medium carrying one or more
2 sequences of instructions for managing access to a resource, wherein execution of
3 the one or more sequences of instructions by one or more processors causes the
4 one or more processors to perform the steps of:
5 sending₁ from a requestor to a master of the resource₁ a lock mode request for a
6 lock mode on the resource;
7 receiving the resource at the requestor from a holder of the resource; and
8 accessing the resource as if the requestor had been granted the lock mode request
9 without waiting to receive an express lock mode grant from the master.

1 29. (Currently amended) The computer-readable medium of Claim 28, wherein
2 execution of the one or more sequences of instructions by the one or more
3 processors causes the one or more processors to further perform the steps of
4 further comprising the sequence of instructions for performing the steps of:

5 detecting [[whether]] that the step of receiving the resource at the requestor [[will
6 occur]] has occurred; and
7 ~~if the requestor does receive the resource~~; sending a lock assume message from
8 the requestor to the master to inform the master that the requestor has
9 assumed the lock mode relative to the resource.

1 30. (Currently amended) A computer-readable medium carrying one or more
2 sequences of instructions for managing access to a resource, wherein execution of
3 the one or more sequences of instructions by one or more processors causes the
4 one or more processors to perform the steps of:
5 receiving, at a holder, an inform lock holder message that a requestor needs the
6 resource, where the holder currently holds the resource and a first lock
7 mode on the resource;
8 transferring the resource to the requestor in response to receiving the inform lock
9 holder message without sending a status message to a master of the
10 resource wherein the status message is a down-convert message or a
11 release lock message; and
12 updating a lock mode record, maintained by the holder, to indicate that the holder
13 has down-converted from the first lock mode to a second lock mode for
14 the resource.

1 31. (Currently amended) The computer-readable medium of Claim 30, wherein
2 execution of the one or more sequences of instructions by the one or more
3 processors causes the one or more processors to further perform the step of further
4 comprising the sequence of instructions for performing the steps of:
5 sending an update lock message to the master, wherein the update lock message
6 indicates the second lock mode for the resource.

1 32. (Currently amended) The computer-readable medium of Claim 30, wherein
2 execution of the one or more sequences of instructions by the one or more
3 processors causes the one or more processors to further perform the steps of


4 ~~further comprising the sequence of instructions for performing the steps of:~~
5 receiving, at the holder, a message from a sender[[]], wherein the message
6 includes a third lock mode on the resource;
7 detecting that the first lock mode and the third lock mode do not match; and
8 sending a lock status message to the sender[[]], wherein the lock status message
9 includes the first lock mode.

1 33. (Currently amended) The computer-readable medium of Claim 30, wherein
2 execution of the one or more sequences of instructions by the one or more
3 processors causes the one or more processors to further perform the steps of
4 ~~further comprising the sequence of instructions for performing the steps of:~~
5 receiving, at the holder, a single batched inform lock holder message that contains
6 all information necessary to transfer the resource to a plurality of
7 requestors; and
8 transferring the resource to the plurality of requestors.

1 34. (Currently amended) The method for Claim 30, wherein execution of the one or
2 more sequences of instructions by the one or more processors causes the one or
3 more processors to further perform the step of ~~further comprising the computer-~~
4 ~~implemented steps of:~~
5 sending a lock access message from the holder to a master.

1 35. (Currently amended) A computer-readable medium carrying one or more
2 sequences of instructions for managing access to a resource, wherein execution of
3 the one or more sequences of instructions by one or more processors causes the
4 one or more processors to perform the steps of:
5 receiving, at a master, a request message which indicates that a requestor needs a
6 particular resource of a plurality of resources, [[where]] wherein the
7 master maintains a plurality of lock mode records corresponding to the
8 plurality of resources;
9 sending, from the master to a holder, an inform lock holder message to indicate to

10 the holder that the requestor needs the particular resource;
11 receiving a lock access message from the requestor where the lock access message
12 indicates that the requestor has assumed a lock mode relative to the
13 particular resource; and
14 performing an update to a particular lock mode record of the plurality of lock
15 mode records in response to receiving the lock access message[[:]],
16 wherein the update indicates that the requestor has assumed the lock mode
17 on the particular resource.



1 36. (Currently amended) The computer-readable medium of Claim 35, wherein the
2 step of performing an update to a particular lock mode record of the plurality of
3 lock mode records in response to receiving the lock access message[[:]] is
4 performed prior to receiving any status message from the holder relating to the
5 particular resource[[:]] , and wherein the status message is a down-convert
6 message or a release lock message.

1 37. (Currently amended) The computer-readable medium of Claim 35, wherein the
2 step of performing an update to a particular lock mode record of the plurality of
3 lock mode records in response to receiving the plurality of lock mode records in
4 response to receiving the lock access message[[:]] is performed without receiving
5 the status message from the holder relating to the particular resource[[:]] , and
6 wherein the status message is a down-convert message or a release lock message.

1 38. (Currently amended) The computer-readable medium of Claim 35, wherein
2 execution of the one or more sequences of instructions by the one or more
3 processors causes the one or more processors to further perform the steps of
4 ~~further comprising sequences of instructions for performing the step of:~~
5 receiving, at the master, a plurality of request messages which indicate that a
6 plurality of requestors need the particular resource; and
7 sending, from the master to the holder, the inform lock holder message, wherein
8 the inform lock holder message contains all information from the plurality

9 of request messages that is necessary for the holder to transfer the
10 particular resource to the plurality of requestors.

1 39. (Currently amended) The computer-readable medium of Claim 35, wherein
2 execution of the one or more sequences of instructions by the one or more
3 processors causes the one or more processors to further perform the steps of
4 ~~further comprising sequences of instructions for performing the step of:~~
5 receiving, at the master, a message from a sender[[]], wherein the message
6 includes a second lock mode on the particular resource;
7 detecting that the lock mode and the second lock mode do not match; and
8 sending a lock status message to the sender[[]], wherein the lock status message
9 includes the lock mode.

1 40. (Currently amended) The computer-readable medium of Claim 35, wherein
2 execution of the one or more sequences of instructions by the one or more
3 processors causes the one or more processors to further perform the steps of
4 ~~further comprising sequences of instructions for performing the step of:~~
5 receiving, at the master, a second request message[[]], wherein the request
6 message and the second request message both contain requests for the
7 resource in exclusive lock mode; and
8 ~~queueing~~ queuing the second request message until the master receives the lock
9 access message from the requestor.

1 41. (Currently amended) A computer-readable medium carrying one or more
2 sequences of instructions for managing access to a resource, wherein execution of
3 the one or more sequences of instructions by one or more processors causes the
4 one or more processors to perform the steps of:
5 receiving, at a master, a request message which indicates that a requestor needs a
6 particular resource of a plurality of resources, where the master maintains
7 a plurality of lock mode records corresponding to the plurality of
8 resources;

9 designating one holder out of a plurality of holders wherein the plurality of
10 holders all have respective lock modes for the particular resource;
11 sending a plurality of broadcast inform lock holder messages to the plurality of
12 holders except for the one holder indicating that the requestor needs the
13 particular resource;
14 receiving a plurality of update lock messages from the plurality of holders except
15 for the one holder[[]],
16 wherein the a plurality of update lock messages indicates the respective lock
17 modes of the plurality of holders;
18 sending, from the master to the one holder, an inform lock holder message to
19 indicate to the one holder that the requestor needs the particular resource;
20 receiving a lock access message from the requestor where the lock access message
21 indicates that the requestor has assumed a lock mode relative to the
22 particular resource; and
23 performing an update to a particular lock mode record of the plurality of lock
24 mode records in response to receiving the lock access message without
25 receiving a status message[[]],
26 wherein the status message is a down-convert message or a release lock
27 message[[]], and
28 wherein the update indicates that the requestor has assumed the lock mode on the
29 particular resource.